

THIS OPINION WAS NOT WRITTEN FOR PUBLICATION

The opinion in support of the decision being entered today (1) was not written for publication in a law journal and (2) is not binding precedent of the Board.

Paper No. 29

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS  
AND INTERFERENCES

Ex parte Stuart Corr

Appeal No. 95-5108  
Application 07/957,080<sup>1</sup>

ON BRIEF

MAILED

SEP 24 1997

PAT.&T.M. OFFICE  
BOARD OF PATENT APPEALS  
AND INTERFERENCES

Before SOFOCLEOUS, DOWNEY, WARREN, Administrative Patent Judges.  
DOWNEY, Administrative Patent Judge.

DECISION ON APPEAL

This is an appeal, under 35 U.S.C. § 134, from the final rejection of claims 1, 5, 8, 14-18, 20-24 and 27-28, all the pending claims in the application.

The invention is directed to a working fluid composition for use in a heat transfer device comprising a

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<sup>1</sup> Application for patent filed October 7, 1992.

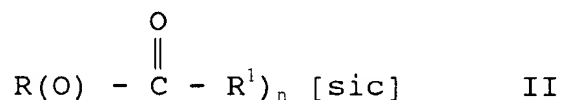
mixture of two hydrofluoroalkanes and a certain lubricant of formula II.

The examiner provided a new ground of rejection in the examiner's answer and appellant amended claim 1,<sup>2</sup> the only independent claim, to read as follows:

1. A working fluid composition consisting essentially of:

(A) a heat transfer fluid consisting essentially of a mixture of at least two hydrofluoroalkanes selected from the group consisting of difluoromethane, 1,1,1,2,-tetrafluoroethane [sic] and pentafluoroethane; and

(B) sufficient to provide lubrication of a lubricant which is at least partially soluble in each component of the heat transfer fluid and in said heat transfer fluid, said lubricant being selected from the group consisting of compounds of general formula:



wherein

R is the hydrocarbon radical remaining after removing the hydroxyl groups from pentaerythritol, dipentaerythritol, tripentaerythritol, trimethylol, [sic] ethane, trimethylol propane or neopentyl glycol, or the hydroxyl containing hydrocarbon radical remaining after removing a proportion of the hydroxyl groups from pentaerythritol,

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<sup>2</sup> The examiner entered the reply brief and amendment. See Paper No. 22.

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dipentaerythritol, tripentaerythritol,  
trimethylol ethane, trimethylol propane  
or neopentyl glycol;

each  $R^1$  is, independently, H, a straight  
chain (linear) aliphatic hydrocarbyl  
group, a branched aliphatic hydrocarbyl  
group, or an aliphatic hydrocarbyl group  
(linear or branched) containing a  
carboxylic acid or carboxylic acid ester  
substituent, provided that at least one  
 $R^1$  group is a linear aliphatic  
hydrocarbyl group or a branched  
aliphatic hydrocarbyl group; and  
n is an integer.

Appellant has not argued any claim separately, hence  
all the claims stand or fall together. Accordingly, we will  
limit our consideration to claim 1, as amended, in considering  
the rejections of the claims.

The references relied upon by the examiner are:

Jolley	WO 90/12849	Apr. 25, 1989
Shankland et al. (Shankland)	4,978,467	Dec. 18, 1990
Shiflett	5,185,094	Feb. 9, 1993
Yoshida et al. (Yoshida)	5,370,811	Dec. 6, 1994

Claims 1, 14-18, 20-24, 27 and 28 stand rejected under  
35 U.S.C. § 103 as being unpatentable over Jolley in view of  
Shankland. Claims 1, 5, 8, 14-18, 20-24, 27 and 28 stand  
rejected under 35 U.S.C. § 103 as being unpatentable over Jolley  
in view of Yoshida or Shiflett.<sup>3</sup> After having carefully  
considered the entire record, including appellant's arguments and

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<sup>3</sup> All other rejections stand withdrawn by the examiner.  
See the Examiner's Answer page 5 and the Supplemental Examiner's  
Answer, page 1.

those of the examiner, we affirm the rejections for essentially those reasons set forth by the examiner in his answer and add the following comments for emphasis.

Jolley discloses a working fluid suitable for heat transfer devices, e.g., refrigerants in refrigerators and air conditioners, comprising a major amount of at least one fluorine containing hydrocarbon containing one or two carbon atoms and a minor amount of at least one soluble organic ester lubricant characterized by the general formula  $R[CO(O)R']_n$ . See page 5, line 19 - column 6, line 7 and page 10, line 11 - page 16, line 27 for the definitions of R, R' and n. Jolley discloses examples of useful fluorohydrocarbons to include trifluoromethane (R-23), 1,1,1-trifluoroethane (R-143a), 1,1-difluoroethane (R-152a), 1,1,1,2-tetrafluoroethane (R-134a) and 1,1,2,3-tetrafluoroethane (R-134). Jolley also teaches that mixtures containing only fluoroalkanes, e.g., R-23 in combination with R-134a, may be used (Page 9). The fluorohydrocarbons and lubricant recited in claim 1 are within the generic teachings of Jolley. Jolley's teaching differs from that of appellant only in that he does not describe the specific fluoroalkane mixtures recited in appellant's claims. However, Shankland describes a binary combination of refrigerant fluids consisting essentially of R-32 and R-134a; and both Yoshida and Shiflett describe a ternary combination of refrigerant fluids consisting essentially of R-32, R-134a and

R-125. Shiflett also indicates that the refrigerant fluids may contain lubricants. In view of the fact that Jolley broadly teaches the combination of the claimed lubricant with refrigerant mixtures of fluoromethanes and fluoroethanes, we agree with the examiner that it would have been prima facie obvious to employ the refrigerant mixtures of fluoroalkanes shown by Shankland, Shiflett or Yoshida, all containing at least one fluorine atom and one or two carbon atoms, in place of the mixtures of fluoroalkanes described in Jolley with the expectation of producing a refrigerant fluid having the requisite solubility recited in the claims. Accordingly, we find that the examiner has established a prima facie case of obviousness with respect to appealed claim 1.

Appellant argues that (1) Jolley doesn't disclose individually R-32 or R125 or the specific combinations of R-32 and 134a, R-32 and R-125, R-134a and R-125, or R-32, R-125 and R-134a and that the secondary references do not show their refrigerants with the claimed lubricants; (2) while Jolley mentions the possibility of a refrigerant which might contain a mixture of fluorohydrocarbons, Jolley only exemplifies R-134a with the described ester lubricant and (3) there is no motivation to combine the secondary references with Jolley. We do not find these arguments persuasive. First, we believe that appellant construes Jolley too narrowly. Jolley plainly discloses the use

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of at least one fluorohydrocarbon which contains at least one fluorine atom and preferably contains one or two carbon atoms, especially where the liquid is used as a refrigerant (page 8), in combination with the claimed ester lubricant. Jolley's description of useful fluorohydrocarbons and the specific disclosure of using mixtures of fluorohydrocarbons with the claimed lubricant is sufficient motivation to employ species within that generic teaching in combination with the claimed lubricant. In re Susi, 440 F.2d 442, 446, USPQ 423, 426 (CCPA 1971); In re Lemin, 332 F.2d 839, 841, 141 USPQ 814, 815-816 (CCPA 1964); and In re Rosicky, 276 F.2d 656, 659-660, 125 USPQ 341, 344 (CCPA 1960). Further, the suggestion to modify the art to produce the claimed invention need not be expressly stated in one or all of the references used to show obviousness. In re Keller 642 F.2d 413, 425, 208 USPQ 871, 881 (CCPA 1981). Rather, the test is what the combined teachings of the references would have suggested to those of ordinary skill in the art. Id. Lastly, it is axiomatic that the entire disclosure of a reference must be evaluated and that a reference is not limited to the disclosure of specific working examples. In re Mills, 470 F.2d 649, 651, 176 USPQ 196, 198 (CCPA 1972).

Appellant argues that there is no reason to expect that the lubricant would work or be soluble in the mixture claimed.<sup>4</sup> This argument is also not persuasive. Obviousness does not require absolute predictability, only a reasonable expectation of success. In re O'Farrell, 853 F.2d 894, 903, 7 USPQ2d 1673, 1681 (Fed. Cir. 1988). Here, it is our view that the lubricants would be soluble in the mixtures of fluoroalkanes of the secondary references as well as the heat transfer fluid because the fluoroalkanes of Shankland, Shiflett, and Yoshida are within the generic teaching of Jolley and are essentially of the same or similar structure to those exemplified and thus would be expected to have similar properties. In re Payne, 606 F.2d 303, 313, 203 USPQ 245, 254 (CCPA 1979).

Lastly, appellant argues that Shiflett and Yoshida were published after Jolley and that one would reasonably expect these references to mention the possibility of using their compounds with the Jolley lubricant. Obviousness is determined as of applicant's date of invention with reference to the hypothetical person of ordinary skill in the art and is not determined on the basis of what was or was not known to a

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<sup>4</sup> We note that in the supplemental examiner's answer, the examiner incorrectly states that "the solubility of the lubricant in the refrigerants is not stated in the claims." The amended claim does recite that the lubricant be partially soluble in each component of the heat transfer fluid and in said heat transfer fluid.

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particular person at some other time. Note Standard Oil Co. v. American Cyanamid Co., 774 F.2d 448, 454, 227 USPQ 293, 297 (Fed. Cir. 1985).

Appellant offers no arguments with respect to objective evidence of nonobviousness. In re Johnson, 747 F. 2d 1456, 1460, 223 USPQ 1260, 1263 (Fed. Cir. 1984); and In re Piasecki, 745 F.2d 1468, 1471, 223 USPQ 785, 787 (Fed. Cir. 1984).


Accordingly, the examiner's rejection of the appealed claims is affirmed.

No time period for taking any subsequent action in connection with this appeal may be extended under 37 C.F.R. § 1.136(a).

AFFIRMED

  
MICHAEL S. SOFOCLEOUS  
Administrative Patent Judge

MARY F. DOWNEY  
Administrative Patent Judge

  
CHARLES F. WARREN  
Administrative Patent Judge

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